

DATASHEET

FUJITSU ETERNUS DX60

DISK STORAGE SYSTEM

THE DATA SAFE



ETERNUS DX - THE DATA SAFE

ETERNUS DX disk storage systems - the most reliable and secure data safes:

For small and medium-sized businesses, ETERNUS DX60, DX80, and DX90 provide fast and highly available data. For mid-range and enterprise customers who need secure and flexible integration into the data center, Fujitsu offers the ETERNUS DX400 series and ETERNUS DX8000 series. ETERNUS DX disk storage systems use the same software stack and hardware functions across the entire range to allow ease-of-use and greater efficiency for users.

ETERNUS SF - Fujitsu's Storage Management Software - reduces total cost of ownership by simplifying the monitoring and management of ETERNUS DX disk storage systems. Furthermore it helps to achieve business continuity by leveraging the Advanced Copy functions for data backup, using snapshots and clones. Altogether, with ETERNUS SF, storage resources in complex IT environments are optimized.

As one of the world's largest IT services companies, Fujitsu combines many years of experience in complex data centers to offer tailor-made solutions that perfectly fit customers' individual requirements. Moreover, Fujitsu is one of the few global players to provide flexible infrastructures with its Dynamic Infrastructures strategy: server, storage, networking and service solutions - all from one trusted partner.

ETERNUS DX60

Fujitsu ETERNUS DX60 is a new generation of entry level disk storage systems with enterprise class reliability. Easy to install, configure, operate and maintain, they integrate well with host operating systems, multi-vendor servers, network infrastructures and backup solutions.

ETERNUS DX60 disk storage systems flexibly scale to 48 terabyte with 24 drives. Different models can either be attached to hosts via Fibre Channel, iSCSI or SAS connections.

ETERNUS DX60 base units support 12x 3.5" drives per 2U rack shelf. Alternative base units of the FC-attached models can be equipped with 24x 2.5" drives per 2U shelf to reduce power consumption and space requirements.

Backup copies are always at hand via the included eight snapshots and clones, which can be optionally upgraded to 512.

ETERNUS SF Express management software, provided with ETERNUS DX60, simplifies the monitoring, management and copying methods of multiple ETERNUS DX disk storage systems from a central console.



**Green
Policy
Innovation**

SUPER Green Product

This product has the top-level environmental factor in the comparison with our previous product or product in market

FEATURES AND BENEFITS

MAIN FEATURES	BENEFITS
QUALITY AND RELIABILITY <ul style="list-style-type: none"> ■ Redundant hot swappable RAID controllers, fans and power supplies ■ Cache Protector uses maintenance-free capacitor technology ■ Redundant Copy rebuilds a disk automatically as soon as the first signs of failure appear ■ Data Block Guard appends check codes to every data block and verifies them at multiple checkpoints ■ RAID Migration enables LUNs to be moved dynamically between different RAID groups and disk drives without interrupting operations ■ Mixed SAS and Nearline SAS disk drives 	<ul style="list-style-type: none"> ■ For highest 99.99% availability ■ Protects the RAID controller cache during power outages and returns the array to high performance mode within minutes following restore ■ Dramatically reduces recovery times and minimizes the risk of permanent data loss during recovery ■ Helps to ensure maximum data integrity on the drives and in cache
INNOVATION AND FLEXIBILITY <ul style="list-style-type: none"> ■ Latest technologies and improved RAID Controller ■ Fibre Channel or iSCSI or SAS host connection ■ 8 snapshots (standard) upgradeable to 512 ■ Eco-mode spins down idle disk drives 	<ul style="list-style-type: none"> ■ For highest performance ■ Flexibly connects to hosts and networks ■ For business continuity and data protection ■ Reduces energy consumption and heat dissipation
EASE-OF-USE <ul style="list-style-type: none"> ■ Intuitive web interface ■ Storage management software ETERNUS SF Express is bundled 	<ul style="list-style-type: none"> ■ Easy to install and operate ■ Simplifies storage monitoring and management
VERSATILITY AND INTEROPERABILITY <ul style="list-style-type: none"> ■ Alternative base units of the FC-attached models can be equipped with 2.5 inch drives ■ A wide range of Operating Systems, servers as well as applications is supported 	<ul style="list-style-type: none"> ■ Disk storage tailored to application and space requirements with optimum power consumption and space requirements ■ Reliable and easy database operation, storage consolidation, clustering, tiered storage, backup-to-disk and many other usage scenarios

QUALITY AND RELIABILITY

ETERNUS DX60 offers entry level solutions with the same non-stop robustness and redundant hot-pluggable components (power supplies, fans, RAID controllers) as much larger systems.

Different drive types can be mixed and matched. All the relevant RAID levels (0, 1, 1+0, 5, 5+0 and 6) are available so that data can be protected in a flexible manner to meet reliability and security requirements. Furthermore, the RAID Migration feature can be used to dynamically move data between different RAID groups and drives without interrupting operations. This allows data to be moved to fast SAS disk drives or high-capacity Nearline SAS disk drives according to its access frequency and importance.

With higher capacities of Nearline SAS disk drives, recovery times following a drive failures are increasing. This increases the risk that another drive will fail before the first has been recovered. It can take a number of days to rebuild a 2 terabyte disk drive in a RAID 5 configuration. "Redundant Copy" starts the rebuild procedure as soon as the first signs of failure appear. This dramatically minimizes the risk of permanent data loss during the recovery action.

ETERNUS DX60 protects data on the disk drives not only via RAID but also via the Data Block Guard. This function appends a check code in every data block and verifies it at multiple checkpoints. This improves data integrity both on the drives and in the cache. Should data corruption occur, the system can detect the error and guarantee the consistency of stored data.

Using Data Encryption, no unauthorized access is possible when drives are removed from the storage system. This feature can be activated if required and is only available in countries where encryption of data is permitted.

ETERNUS DX60 is also equipped with state-of-the-art Cache Protector. Instead of traditional batteries, it uses capacitors to write the contents of the RAID controller cache to flash memory in the event of power failure and to ensure that no data is lost. The power generated by the capacitor is sufficient for the data backup. When power supply is restored, the cache can be restored very quickly as capacitors recharge a lot faster than batteries. The capacitors used in ETERNUS DX90 do not need as much maintenance and have a longer lifespan than batteries frequently used in other systems.

INNOVATION AND FLEXIBILITY

With three different base models, ETERNUS DX60 can connect to hosts either via Fibre Channel, iSCSI or SAS using either single or dual controllers with 1GB of each cache. Online upgrades from single to dual controller configurations are possible. With two Fibre Channel controllers, a maximum of 64 hosts can be connected in Storage Area Networks (SAN). In contrast, the iSCSI models enable SAN functionality via the well-known Internet Protocol which requires no investment in new IT infrastructure and training. In comparison the SAS models directly connect to servers so that very low-priced cluster configurations can be implemented.

With Advanced Copy functions, a business data volume can be copied to a separate copy volume, within the disk storage system, at any point in time. Once the copy is completed, the copy volume can be separated from the business volume. This allows easy backup to a tape device, as using the point in time copy allows ongoing normal operations on the business data.

ETERNUS DX60 is equipped with 8 snapshot sessions. Using the Graphical User Interface (GUI) or Command Line Interface (CLI), they enable planning of the required quantity of copy sessions as well as testing of copying functions. Once a copy license is purchased, snapshots can be extended to 512 sessions.

ETERNUS DX60 is a leading energy-efficient storage system. In Eco-mode, which uses MAID (Massive Array of Idle Disks) technology, it requires even less energy and produces less heat as disk drives not in use can stop rotation. In backup-to-disk environments, drives used for nightly backup can be spun down during daily operations. This contributes significantly to system and data center efficiency.

EASE-OF-USE

Installation is quite simple. The management software - with its graphical user interface and installation wizard - is designed for easy intuitive operation and comes pre-installed on each system. Day to day operation management of ETERNUS DX60 is very straight forward. Firmware upgrades can also be carried out - usually without any operational interruptions.

With ETERNUS SF Express already bundled for simplified storage system management and maintenance, monitoring multiple ETERNUS DX disk storage systems from the one centralized console is no problem. In addition it manages the Advanced Copy functions within the storage system making snapshots and clones an easy task, through one combined management console.

VERSATILITY AND INTEROPERABILITY

At just 2U height and with a capacity of 12 drives in 3.5 inch format, ETERNUS DX60 flexibly scales from 600GB to 48TB. An alternative FC base model is available for a maximum of 24x 2.5 inch drives. With 2.5 inch drives the maximum storage capacity of each system is limited to 7.2 Terabytes.

ETERNUS DX60 is suitable for a broad range of uses, including high-availability solutions. Examples are: Microsoft Cluster Server, x10sure or ServerView Resource Coordinator VE, storage consolidation, critical company applications, such as databases or e-mail, archiving and backup-to-disk. ETERNUS DX60 is also ideal for use in the virtual server environments of VMware vSphere, Citrix and Microsoft Hyper-V.

TECHNICAL DETAILS

GENERAL SPECIFICATION

CPU Frequency	
RAID Levels	
Host Interfaces	
Number of controllers	
Number of host interfaces	
Number of hosts	Fibre Channel
	iSCSI
	SAS
Cache memory capacity	
Number of drive enclosures	
Number of drives	
Storage capacity	Physical capacity
	Logical capacity
Drives	3.5-inch
	SAS disk drives
	Nearline SAS disk drives
	2.5-inch
	SAS disk drives
Drive interface	
Redundancies	RAID Controller
	Fan
	Power Supply
Number of Snapshots	Standard (built-in)
	Maximum (option)
- Note	
Remote Copy feature	

3.5" BASE MODEL		2.5" BASE MODEL	
SINGLE CONTROLLER	DUAL CONTROLLER	SINGLE CONTROLLER	DUAL CONTROLLER
800 MHz			
0, 1, 1+0, 5, 5+0, 6			
Fibre Channel (4/2/1Gbit/s)		Fibre Channel (4/2/1Gbit/s)	
iSCSI (1Gbit/s)			
SAS (3Gbit/s)			
1	2	1	2
2	4	2	4
Max. 32	Max. 64	Max. 32	Max. 64
Max. 32	Max. 64	n/a	n/a
Max. 2	Max. 4	n/a	n/a
1 GB	2 GB	1 GB	2 GB
Max. 1 (3.5" only)		n/a	
2 - 24			
Max. 48.0 TB		Max. 14.4 TB	
Max. 33.8 TB		Max. 10.1 TB	
600GB/450GB/300GB (15,000rpm)		n/a	
2TB/1TB/750GB (7,200rpm)		n/a	
n/a		600GB/450GB/300GB/146GB (10,000rpm)	
Serial Attached SCSI (3Gbit/s)			
No	Yes	No	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
8			
512			
Snap/Clone License must be purchased to maximize the number of Snapshots			
No			

INSTALLATION SPECIFICATION

Dimensions (W x D x H)	Standard
	Maximum
Service Area	Front
	Rear
Maximum Weight	
Power	Voltage
	Phase
	Frequency
Maximum Power Consumption	AC 100 - 120V
	AC 200 - 240V
Maximum Heat Generation	AC 100 - 120V
	AC 200 - 240V
- Notes	
Environmental Conditions	Temperature (Operating)
	Humidity (Operating)
Altitude	

3.5" BASE MODEL		2.5" BASE MODEL	
483 x 650 x 88mm (19 x 25.5 x 3.5 inch) [2U]			
483 x 650 x 177mm (19 x 25.5 x 7 inch) [4U]		n/a	
800 mm (31.5 inch) or more			
800 mm (31.5 inch) or more			
70 kg (35 kg per single enclosure)		35 kg (35 kg per single enclosure)	
155 lb (77.2 lb per single enclosure)		77.2 lb (77.2 lb per single enclosure)	
AC 100 – 120 V / AC 200 – 240 V			
Single			
50 Hz / 60 Hz			
800 W (800 VA)		470 W (470 VA)	
790 W (800 VA)		460 W (480 VA)	
2880 kJ/h (2730 BTU/h)		1692 kJ/h (1604 BTU/h)	
2844 kJ/h (2696 BTU/h)		1656 kJ/h (1570 BTU/h)	
Max. Power Consumption and Heat Generation for 2.5" base models apply for configurations with only 2.5" drives			
5 – 40°C (41 – 104°F)			
20 – 80% RH			
3000 m (9842 ft.)			

SUPPORTED RAID LEVELS

RAID 0	Data striping on several disk drives
RAID 1	Mirrored disk drives
RAID 1+0	Data mirroring, then striping of the data over several disk drives
RAID 5	Striping with distributed parity
RAID 5+0	RAID 5 arrays, striped again over several drives
RAID 6	Striping with distributed double parity

MANAGEMENT

Interfaces	Ethernet (1000 Base-T / 100 Base-TX / 10 Base-T)
Supported protocols	SNMP (version1), SMI-S 1.2
Administration	Web-Environment, CLI (Command Line Interface), ETERNUS SF Express

SUPPORTED OS FOR ETERNUS SF EXPRESS

Operation Management Server	Microsoft® Windows Server® 2008 R2 Standard (64-bit) Microsoft® Windows Server® 2008 R2 Enterprise (64-bit) Microsoft® Windows Server® 2008 R2 Datacenter (64-bit) Microsoft® Windows Server® 2008 Standard without Hyper-V™ (32-bit)(64-bit) Microsoft® Windows Server® 2008 Enterprise without Hyper-V™ (32-bit)(64-bit) Microsoft® Windows Server® 2008 Datacenter without Hyper-V™ (32-bit)(64-bit) Microsoft® Windows Server® 2008 Standard (32-bit)(64-bit) Microsoft® Windows Server® 2008 Enterprise (32-bit)(64-bit) Microsoft® Windows Server® 2008 Datacenter (32-bit)(64-bit) Microsoft® Windows Server® 2003 R2, Standard Edition Microsoft® Windows Server® 2003 R2, Enterprise Edition Microsoft® Windows Server® 2003 R2, Standard x64 Edition Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition Microsoft® Windows Server® 2003, Standard Edition Microsoft® Windows Server® 2003, Enterprise Edition Microsoft® Windows Server® 2003, Standard x64 Edition Microsoft® Windows Server® 2003, Enterprise x64 Edition
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NOISE EMISSION

	3.5" BASE MODEL	2.5" BASE MODEL
Sound Power Level (LWAd)	5.9 B	6.0 B
Sound Pressure Level (LpAm)	42.0 dB(A)	43.5 dB(A)
- Notes	measured with single enclosure according to ISO7779 and declared according to ISO9296	

SUPPORTED CONFIGURATIONS

A wide range of host operating systems, servers as well as applications is supported.

For a detailed support matrix check: <http://www.fujitsu.com/global/services/computing/storage/eternus/products/diskstorage/dx-entry/supported-device/>

COMPLIANCE WITH STANDARDS

Product safety	UL60950-1, CSA-C22.2 No. 60950-1, EN60950-1, IEC60950-1, GOST-R
Electromagnetic Compatibility	CNS13438(C6357) Class A, FCC CFR47 part 15 Class A, ICES-003 Class A, EN55022 Class A, VCCI Class A, AS/NZS CISPR22 Class A
Electromagnetic Immunity	EN55024
CE certification	Electromagnetic Compatibility Directive 2004/108/EC Low Voltage Directive 2006/95/EC
Environmental compliance	RoHS-compliant (Restriction of hazardous substances) WEEE-compliant (Waste electrical and electronic equipment)
- Notes	There is general compliance with the safety requirements of all European countries and North America. National approvals required in order to satisfy statutory regulations or for other reasons can be applied for on request.
Compliance link	Compliance link: https://sp.ts.fujitsu.com/sites/certificates/default.aspx

FUJITSU PLATFORM SOLUTIONS

In addition to Fujitsu ETERNUS DX60, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Dynamic Infrastructures

With the Fujitsu Dynamic Infrastructures approach, Fujitsu offers a full portfolio of IT products, solutions and services, ranging from clients to datacenter solutions, Managed Infrastructure and Infrastructure-as-a-Service. How much you benefit from Fujitsu technologies and services depends on the level of cooperation you choose. This takes IT flexibility and efficiency to the next level.

Computing Products

www.fujitsu.com/global/services/computing/

- PRIMERGY: Industrial standard server
- SPARC Enterprise: UNIX server
- PRIMEQUEST: Mission-critical IA server
- ETERNUS: Storage system

Software

www.fujitsu.com/software/

- Interstage: Application infrastructure software
- Systemwalker: System management software

MORE INFORMATION

Learn more about Fujitsu ETERNUS DX60, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website.
www.fujitsu.com/eternus/

FUJITSU GREEN POLICY INNOVATION

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to resolve issues of environmental energy efficiency through IT. Please find further information at:
www.fujitsu.com/global/about/environment/



**Green
Policy
Innovation**

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